



Do you perform aqueous cleaning of parts or equipment?

Would you like to improve this process in the following areas?

- **Meet environmental compliance regulations.** Reduce wastewater disposal. Meet installation pretreatment discharge requirements. Media areas are wastewater and hazardous waste.
- **Improve workers' safety and health.** No change to current operations.
- **Increase productivity.** Reduce labor hours for cleaning operations.
- **Save money.** Reduce labor costs and detergent procurement costs.



High Pressure Closed Loop Cleaning System

The High Pressure Closed Loop Aqueous Parts Cleaning System can be used to reduce water use and wastewater disposal from aqueous cleaning operations. Navy activities typically pressure wash parts, vehicles, or support equipment, discharging the used wash water to a sewer or Publicly Owned Treatment Works (POTW). These wastewaters typically contain detergents, fuel, oils, metals and other contaminants. A High Pressure Closed Loop Aqueous Parts Cleaning System can provide a process that enables the reuse of used wash water. The parts to be cleaned are mounted on a portable platform unit with enclosure walls and sprayed with a stream of pressurized hot water and detergent. Wash water is collected in a receiving tank and pumped through a combination of skimmers and filtration elements. An ozone injector system is used to kill bacteria and eliminate odor. An application of the High Pressure Closed Loop Aqueous Parts Cleaning System at PWC Norfolk successfully demonstrated a reduction in cleaning time for submarine components of approximately 80%. This system is available through the Navy Pollution Prevention Equipment Program (PPEP).

How can you achieve these improvements?

Use a High Pressure Closed Loop Aqueous Parts Cleaning System.

How does this system work?

This portable, self-contained aqueous power washer uses a high-pressure stream of heated water to clean various types of parts and equipment. The system captures, filters, disinfects, and reuses heated process water.

How will this system save you money?

This system reduces labor costs associated with cleaning operations and reduces detergent procurement costs. At locations that dispose of used wash water or require pretreatment before discharging to a wastewater treatment facility, this system can reduce the cost associated with wastewater disposal or treatment. Equipment cost is approximately \$10 - \$40K, depending on the size of the unit.



Typical Process Flow Diagram



How can this technology eliminate or reduce pollution?

This technology reduces wastewater generated during cleaning operations. Implementation will result in the following pollution reductions:

- Reduce wastewater/hazardous waste requiring disposal.
- Reduce potable and detergent use.
- Reduce wastewater discharges to water treatment plants.

Which activities can benefit most from this technology?

This technology can be used at activities that use aqueous-based products for cleaning applications. Typical applications include:

- Support equipment cleaning
- Construction equipment cleaning
- Car washes and auto hobby shops
- Public works
- Motor pools

How can this technology reduce regulatory compliance concerns?

This technology recycles wash water that is traditionally discharged after it is used to clean parts and equipment, thereby reducing wastewater volume. Implementation will result in the following regulatory compliance benefits:

- Helps activities meet pretreatment standards for wastewater discharges to a POTW (40 CFR 403).
- Helps activities meet the pretreatment and effluent limits of their NPDES permit (40 CFR 122).
- Helps activities comply with Executive Order 12902 for conserving water resources.



Achieving Environmental Compliance Through Pollution Prevention

Every day the Navy faces the challenge of operating and maintaining the fleet while complying with environmental regulations. This burden can be reduced by using pollution prevention technologies and methods to reduce compliance requirements. This fact sheet is one in a series designed to encourage activities to use pollution prevention technologies and methods. The overall goal of this series is to promote sustained environmental compliance at the lowest life-cycle cost.

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